

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A multi-channel image encoding apparatus for selectively receiving
2 image signals transmitted through a plurality of input channels and encoding the image signals,
3 comprising:

4 a channel data processor comprising a frame buffer group including a plurality of frame
5 buffers for each input channel in order to receive a plurality of frame data through the plurality of
6 input channels and to store the plurality of frame data, the channel data processor for selecting data
7 transmitted to the frame buffer group to output the selected data, the channel data processor storing
8 each unit of the frame data into the frame buffer group corresponding to each channel in accordance
9 with a set-up input channel selection order; and

10 an encoder for encoding image signals output from the channel data processor with a Moving
11 Picture Experts Group method.

1 2. (Currently Amended) The multi-channel image encoding apparatus of claim 1, further
2 comprised of ~~the channel data processor storing each unit of the frame data into the frame buffer~~
3 ~~group corresponding to each channel in accordance with a set-up input channel selection order, and~~
4 outputting the plurality of frame data stored in the frame buffer group to the encoder for each

channel.

3. (Original) The multi-channel image encoding apparatus of claim 1, with the channel data processor comprising:

a first multi-switch unit for selectively contacting each of the input channels with the frame buffer group of corresponding to each of the input channels; and

a second multi-switch unit for selectively contacting with the frame buffer group and outputting data output from the frame buffer group to the encoder.

4. (Original) The multi-channel image encoding apparatus of claim 3, further comprised of the first multi-switch unit storing each unit of the frame data into the frame buffer group corresponding to the input channels in accordance with a set-up input channel selection order, and the second multi-switch unit contacting with the frame buffer group in accordance with a set-up channel contact order and outputting the plurality of frame data stored in the contacted frame buffer group for each of the input channels.

5. (Original) The multi-channel image encoding apparatus of claim 4, with the encoder comprising:

a discrete cosine transformer for performing a discrete cosine transform with respect to the image signals input from the second multi-switch unit;

a quantizer for quantizing signals output from the discrete cosine transformer and outputting

6 the quantized signals;

7 an inverse quantizer for inversely quantizing the quantized signals;

8 an inverse discrete cosine transformer for performing an inverse discrete cosine transform
9 with respect to the inversely quantized signals;

10 a prediction memory;

11 an adder for adding data output from the prediction memory and the inversely discrete cosine
12 transformed data, and outputting the added data to the prediction memory; and

13 a subtracter for subtracting data output from the prediction memory from signals input
14 through the second multi-switch unit, and outputting the subtracted signal to the discrete cosine
15 transformer.

1 6. (Original) The multi-channel image encoding apparatus of claim 5, with the encoder
2 further comprising:

3 a variable length encoder for performing a variable length encoding with respect to signals
4 output from the quantizer, and outputting the encoded signals; and

5 a parser for loading channel information about each frame to signals output from the variable
6 length encoder, and outputting the signals.

1 7. (Original) The multi-channel image encoding apparatus of claim 3, further comprising:
2 a channel selection unit including a key for setting up a channel select pattern in regard to
3 the plurality of input channels; and

4 a channel controller for controlling the first multi-switch unit and the second multi-switch
5 unit in accordance with the channel select pattern set up by the channel selection unit.

1 8. (Original) An encoding method of a multi-channel image encoding apparatus for
2 selectively receiving image signals transmitted through a plurality of input channels and encoding
3 the image signals, comprising the steps of:

4 selecting the input channels in accordance with a set-up order to receive a unit frame data for
5 the input channels;

6 storing the signals input through the selected input channels;

7 outputting the plurality of frame data stored for each channel in accordance with a set-up
8 selection order; and

9 encoding a plurality of frame data output for each channel.

1 9. (Original) A multi-channel image encoding apparatus for encoding image signals input
2 through a plurality of input channels, comprising:

3 a channel data processor for selectively contacting with the plurality of input channels and
4 selectively outputting transmitted image signals for each of the input channels; and

5 an encoder for encoding signals output from the channel data processor by using a previous
6 frame data stored in a prediction memory provided for each corresponding channel.

1 10. (Original) The multi-channel image encoding apparatus of claim 9, with the channel data

processor comprising:

a first multi-switch unit for selectively contacting the input channels with frame buffer corresponding to each of the input channels; and

a second multi-switch unit for selectively contacting with the frame buffer and outputting data output from the frame buffer to the encoder.

11. (Original) The multi-channel image encoding apparatus of claim 10, with the encoder comprising:

a discrete cosine transformer for performing a discrete cosine transform with respect to the input image signals;

a quantizer for quantizing signals output from the discrete cosine transformer:

an inverse quantizer for inversely quantizing the quantized signals;

an inverse discrete cosine transformer for performing an inverse discrete cosine transform with respect to the inversely quantized signals;

an adder for adding data output from the selected prediction memory and the inversely discrete cosine transformed data, and outputting the added data to the prediction memory of corresponding channels;

a subtracter for subtracting data output from the prediction memory from signals input through the second multi-switch unit, and outputting the subtracted signal to the discrete cosine transformer; and

a prediction memory selection unit for controlling the prediction memory of channels

16 corresponding to the selected channels by the second multi-switch unit to be contacted between the
17 adder and the subtracter.

1 12. (Original) The multi-channel image encoding apparatus of claim 11, with the encoder
2 comprising:

3 a variable length encoder for performing a variable length encoding with respect to signals
4 output from the quantizer; and

5 a parser for loading channel information about each frame to signals output from the variable
6 length encoder, and outputting the signals.

1 13. (Original) The multi-channel image encoding apparatus of claim 11, further comprising:

2 a channel selection unit having a key for setting up a channel select pattern in regard to the
3 plurality of input channels; and

4 a channel controller for controlling the first multi-switch unit, the second multi-switch unit,
5 and the prediction memory in accordance with the channel select pattern set up by the channel
6 selection unit.

1 14. (Original) An encoding method of multi-channel image encoding apparatus for
2 selectively receiving image signals transmitted through a plurality of input channels and encoding
3 the image signals, comprising the steps of:

4 outputting unit frame data transmitted corresponding to the set-up input channel selection

5 order for each channel to the encoder;

6 selecting a prediction memory of channels corresponding to the input unit frame data among
7 the prediction memory with numbers corresponding to the number of the input channels; and

8 encoding by using the data previously stored in the prediction memory and frame data of the
9 current input channel.

1 15. (Original) A multi-channel image encoding apparatus for encoding image signals input
2 through a plurality of input channels, comprising:

3 a channel data processor for selectively contacting with the plurality of input channels and
4 selectively outputting transmitted image information for each of the input channels; and

5 an encoder for calculating a similarity by comparing image signals output from the channel
6 data processor and the previous frame data stored in the frame memory provided for corresponding
7 channels, and selecting one mode among a plurality of encoding modes set up differently for each
8 other in regard to the present frame data in accordance with the calculated similarity and encoding
9 according to the selected encoding mode.

1 16. (Original) The multi-channel image encoding apparatus of claim 15, with the plurality
2 of encoding modes comprising:

3 a first mode for encoding the present frame data with an intra coding method; and

4 a second mode for encoding data gained by subtracting the previous frame data from the
5 present frame data.

1 17. (Original) The multi-channel image encoding apparatus of claim 16, with the encoder
2 comprising:

3 an encode unit for encoding; and

4 a similarity calculation unit for determining a corresponding encoding mode by calculating
5 the similarity, controlling the encode unit to perform the determined encoding mode, and outputting
6 determined encoding mode information.

1 18. (Original) The multi-channel image encoding apparatus of claim 15, with the data
2 processor comprising:

3 a first multi-switch unit for selectively contacting each of the input channels with frame
4 buffer of corresponding channels; and

5 a second multi-switch unit for selectively contacting with the frame buffer, and outputting
6 data output from the frame buffer to the encoder.

1 19. (Currently Amended) The multi-channel image encoding apparatus of claim 18, with the
2 encoder comprising:

3 an intra frame coder for intra coding with respect to input image signals;

4 an intra frame decoder for decoding with respect to signals output from the intra frame coder;

5 an adder for adding data output from the selected frame memory and data output from the
6 intra frame decoder, and outputting the added data to the frame memory of corresponding channels;

7 a subtracter for subtracting data output from the selected frame memory from signals input
8 through the second multi-switch unit and outputting the subtracted signal to the intra frame coder;
9 and

10 a frame memory selection unit for controlling the frame memory of channels corresponding
11 to channels selected by the second multi-switch unit ~~in order~~ accommodating to be contacted
12 between the adder and the subtracter by being controlled by the similarity calculation unit.

1 20. (Original) The multi-channel image encoding apparatus of claim 17, further comprised
2 of the similarity calculation unit calculating a similarity by comparing previous screen data stored
3 in the selected frame memory by the frame memory selection unit and frame data of a selected
4 channel by the second multi-switch unit with a set-up macro block unit, and determining an encoding
5 mode with the macro block unit.

1 21. (Original) The multi-channel image encoding apparatus of claim 20, further comprised
2 of the similarity calculation unit determining a calculated similarity as the first mode, when the
3 calculated similarity is greater than a set-up reference value, and as the second mode, when the
4 calculated similarity is less than a set-up reference value.

1 22. (Original) The multi-channel image encoding apparatus of claim 19, further comprising:
2 a channel selection unit for setting up a channel select pattern to encode in regard to the
3 plurality of input channels; and

4 a channel controller for controlling the first multi-switch unit, the second multi-switch unit,
5 and the frame memory selection unit to encode received images in accordance with a channel select
6 pattern selected by the channel selection unit.

1 23. (Original) An encoding method of multi-channel image encoding apparatus for
2 selectively receiving image signals transmitted through a plurality of input channels and encoding
3 the image signals, comprising the steps of:

4 outputting unit frame data for each channel to the encoder by selecting the input channels in
5 accordance with a set-up encode order;

6 selecting frame memory of channels corresponding to input unit frame data among frame
7 memory having numbers corresponding to the number of input channels;

8 calculating a similarity by comparing data previously stored in selected frame memory with
9 frame data of currently inputted channels; and

10 encoding the present frame data by intra coding method, when the similarity is less than a
11 set-up reference value.

1 24. (Original) The encoding method of multi-channel image encoding apparatus of claim
2 23, further comprised of the similarity being greater than the reference value, then data gained by
3 subtracting previous data from present data is encoded.

1 25. (Original) The encoding method of multi-channel image encoding apparatus of claim

- 2 23, further comprised of the similarity calculation being performed with a set-up macro block unit.